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Define

Prof. James A. Landay
Computer Science Department
Stanford University

Autumn 2023
October 2, 2023

Slides adapted from d.leadership Define + Ideate slides (https://dschool.stanford.edu/groups/dleadership/wiki/59f08/dleadership_2015.html)
Additional resources from bootcamp bootleg (https://hci.stanford.edu/courses/cs147/2021/wi/readings/bootcamp_bootleg.pdf)

Hall of Fame or Shame?



CA.gov REAL ID Online Services Translate MyDMV Search here...

Vehicle Registration Driver's License & ID Cards Vehicle Industry Services Driver Education & Safety Appointments Locations

UPGRADE TO REAL ID

Are you REAL ID ready?

APPLY TODAY

California DRIVER LICENSE

11 1 2 3

Facebook

Skip the Visit. Use Our New Service Advisor!

- registration • driver's license • replacement title • address change • more!

Visit Service Advisor

Registration Renewal

Skip the line and renew your vehicle registration online at your fingertips.

Renew →

Online Services

Most DMV business can be started and completed online, saving you time and money.

See all online services →

Go Paperless

Get your DL/ID card and vehicle registration renewal notices electronically.

Get paperless notices →

Take care of it the easier way: online! Completing your vehicle registration has never been easier! 0:15

Skip the trip to the DMV office! Skip the trip to the DMV office! 0:15

Opt-in for paperless notifications from the DMV! Opt-in for paperless notifications from the DMV! 0:15

<http://dmv.ca.gov>

California DMV

dmv.ca.gov/portal/chat-bot/

Miles

Hello, I'm Miles, the California DMV's Virtual Assistant. I'm here to answer general DMV related questions. If I cannot answer your question, type or say "agent" and you will be prompted to chat with an agent during normal business hours, Monday, through Friday 8 a.m.-5p.m.

Online Services

Vehicle or Vessel Registration

Driver's License/ID Card

Moving to California? REAL ID

Occupational Licensing

Start Chat Send

Save Chat Language End Chat

CA GOV STATE OF CALIFORNIA DMV

REAL ID Online Services Translate MyDMV Search here...

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UPGRADE TO REAL ID

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Feedback

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Hall of Fame!



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Get paperless notices →

Autumn 2023 dt+UX: Design Thinking for User Experience Design, Prototyping & Evaluation

<http://www.dol.wa.gov/>

- + UI is clean & uncluttered (lots of whitespace)
- + Most common task in white bar near top
- + Less important info below *fold*
- + Language translation at top
- + Contrast of white bar indicates navigation
- Large wasted first read: “UPGRADE TO REAL ID”. And large image! (rotates among 3)
- Have to click through menus to get to tasks

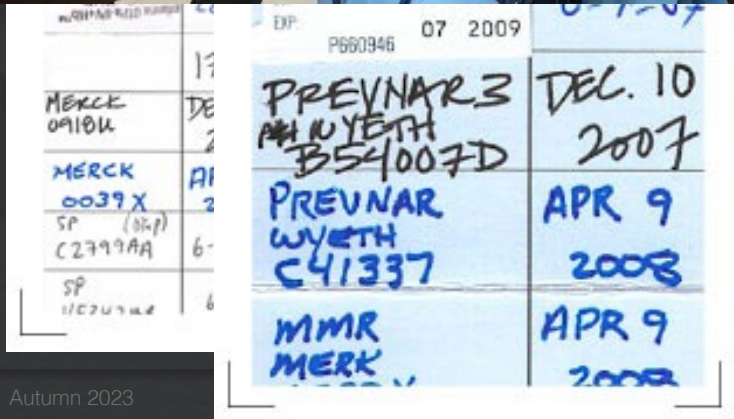
Hall of Shame or Fame?



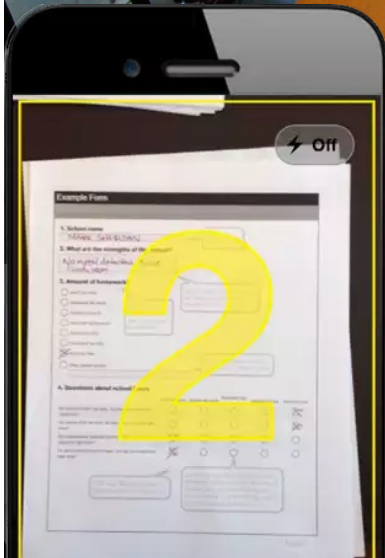
Captricity

Forms used for public health/education data in under resourced regions

Often slow to get data & data entry error prone



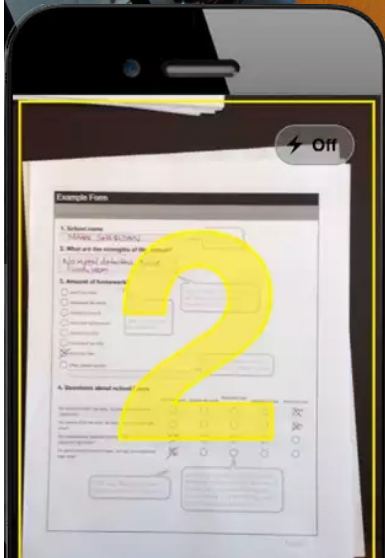
Hall of Shame or Fame?



Captricity

Scan-in or use phone to tack picture of form data
Machine learning to parse & humans to verify

Hall of Fame!



Captricity

Scan-in form data

Machine learning to parse & humans to verify

Faster & less error prone than existing methods

UI innovation is the form layout & using phone camera

Focus on the Gems & Ethical Considerations in Needfinding

“Hearing is through the ears, but *listening* is through the mind.” –Someone



What Are the Gems?

- You've uncovered a **surprise**/found what is **missing**
- You can explain **why** people **do unusual things**
- You **want to tell others** about what you learned

Share With Your Team

- Stories
- Photos
- Sketches
- Quotes

Users: Unique or One of Many?

“Take the attitude that nothing any person does is done for no reason; if you think it’s for no reason, you don’t yet understand the point of view from which it makes sense.

Take the attitude that nothing any person does is unique to them, it always represents an important class of customers whose needs will not be met if you don’t figure out what’s going on.”

(p. 63, *Contextual Design*)

Ethical Considerations in Needfinding

- Power
- Language
- Standpoint
- Inclusion

Ethical Considerations in Needfinding: Power

Testing/fieldwork can be **coercive** if there is a power imbalance (e.g., in under resourced communities)



<http://centread.ucsc.edu/CenTREAD%20photos/BrianDowd2.JPG>

People may feel no option but to speak to you or give you their time even though they may not get anything of value in return.

Ethical Considerations in Needfinding: Power

Power imbalances between the researchers and interviewees may create bias in results

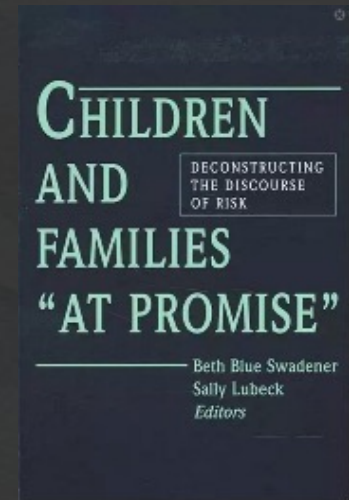


<http://research.microsoft.com/pubs/163718/CHI2012-Dell-ResponseBias-proc.pdf>

“When the interviewer is a foreign researcher requiring a translator, the bias towards the interviewer’s artifact increases to 5x.”

Ethical Considerations in Needfinding: Language

The language used to describe underserved communities may contain historical prejudice and may affect the way we understand and address their needs and interests.



<http://www.sunypress.edu/>

“the ‘at-risk’ label is highly problematic and often implicitly racist and classist... [it] locates problems in individuals, families, and communities, rather than in institutional structures that create and maintain inequality.”

Ethical Considerations in Needfinding: Standpoint

- Our ability to empathize with people who are different from us may be affected by a variety of situational factors
- Empathetic design requires *acknowledging* that members of underserved communities & underrepresented minorities have *perspectives that are not immediately accessible* to the more privileged & empowered
- Listening & *incorporating their standpoints* is crucial as a point of departure for research

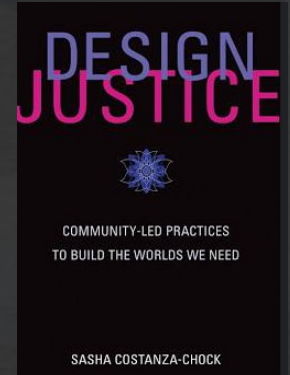
Ethical Considerations in Needfinding: Standpoint

Users not only have greater knowledge of their wants/needs but also of their *assets*

Emergent Strategies: “whenever people face challenges, they are always already working to face those challenges” (Sasha-Constanza Chock, *Design Justice*)

Watch HCI Seminar (CS 547 from April, 2019)

“Design Justice and the distribution of affordances and disaffordances under the matrix of domination”



<https://design-justice.pubpub.org>



<https://www.akpress.org/emergentstrategy.html>

Ethical Considerations in Needfinding: Inclusion

- Accommodation
 - meet your interviewees where they are (not just physically)
 - making people comfortable & safe leads to the best interviews & insights
 - accommodations vary depending on who your interviewee is (signers for hearing-impaired, interpreters for non-native English speakers, etc.)
 - be mindful of power dynamics
- Accountability
 - involve interviewees in later stages of the design process as well
 - does your design address their wants & needs?

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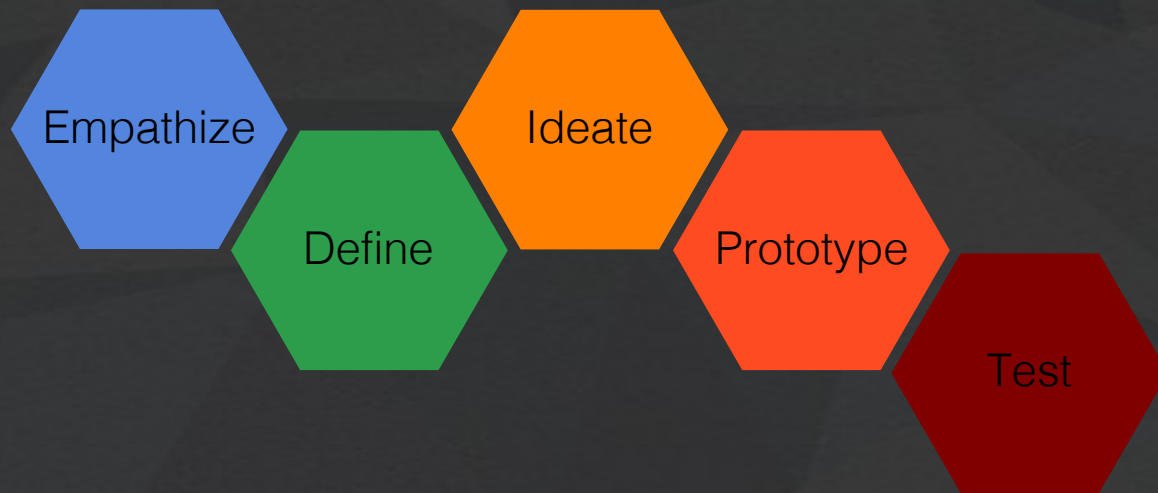
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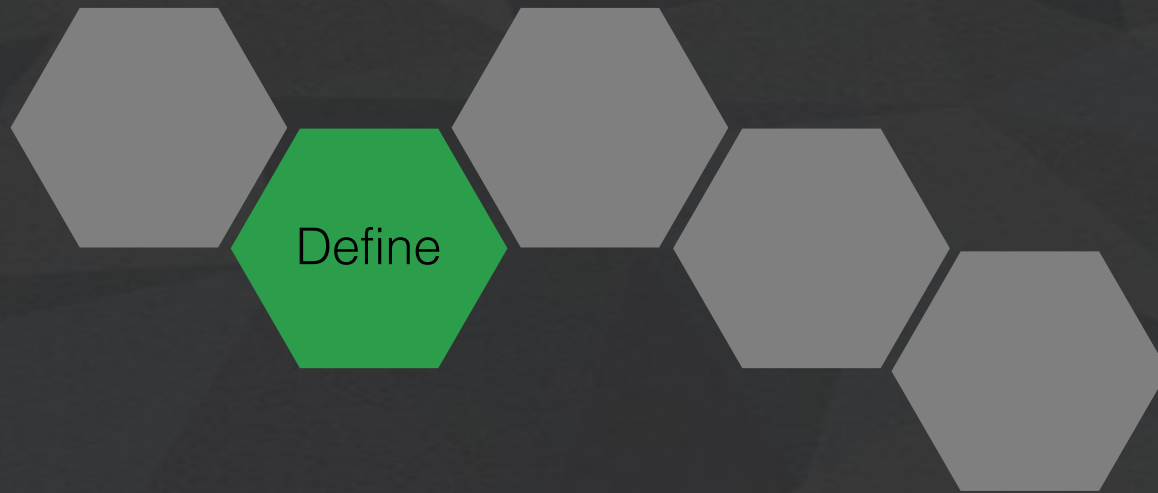
Outline

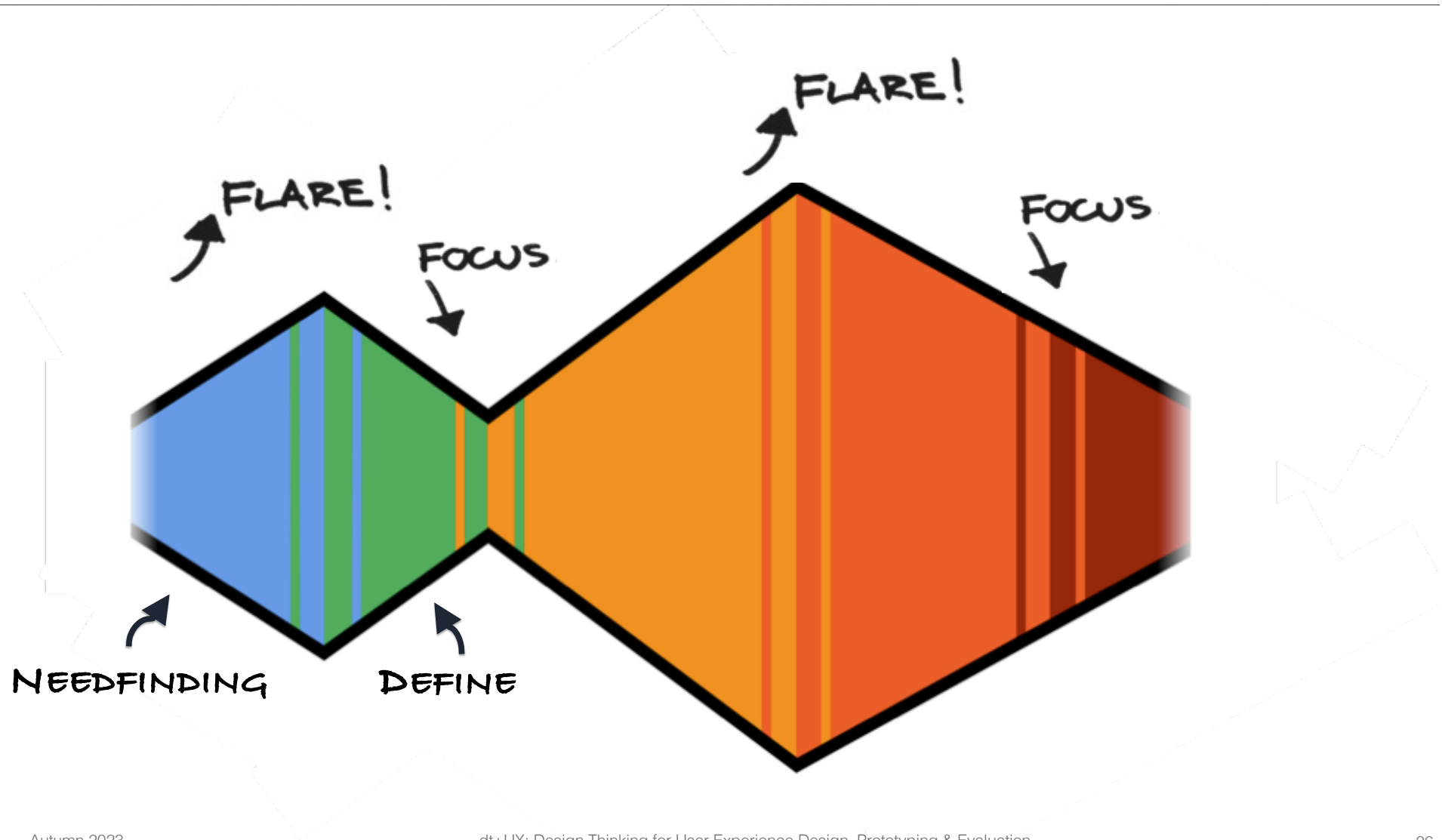
- Design thinking process
- Inferring insights
- Point of views
- Administrivia
- Team break
- Unpacking data
- Writing & evaluating POVs

Design Thinking



Design Thinking





REALIZE



Define

FOCUS



REALIZE NEW INSIGHTS

REFRAME THE PROBLEM.
UNCOVER OPPORTUNITIES.

OBSERVATION

INFER

INSIGHT

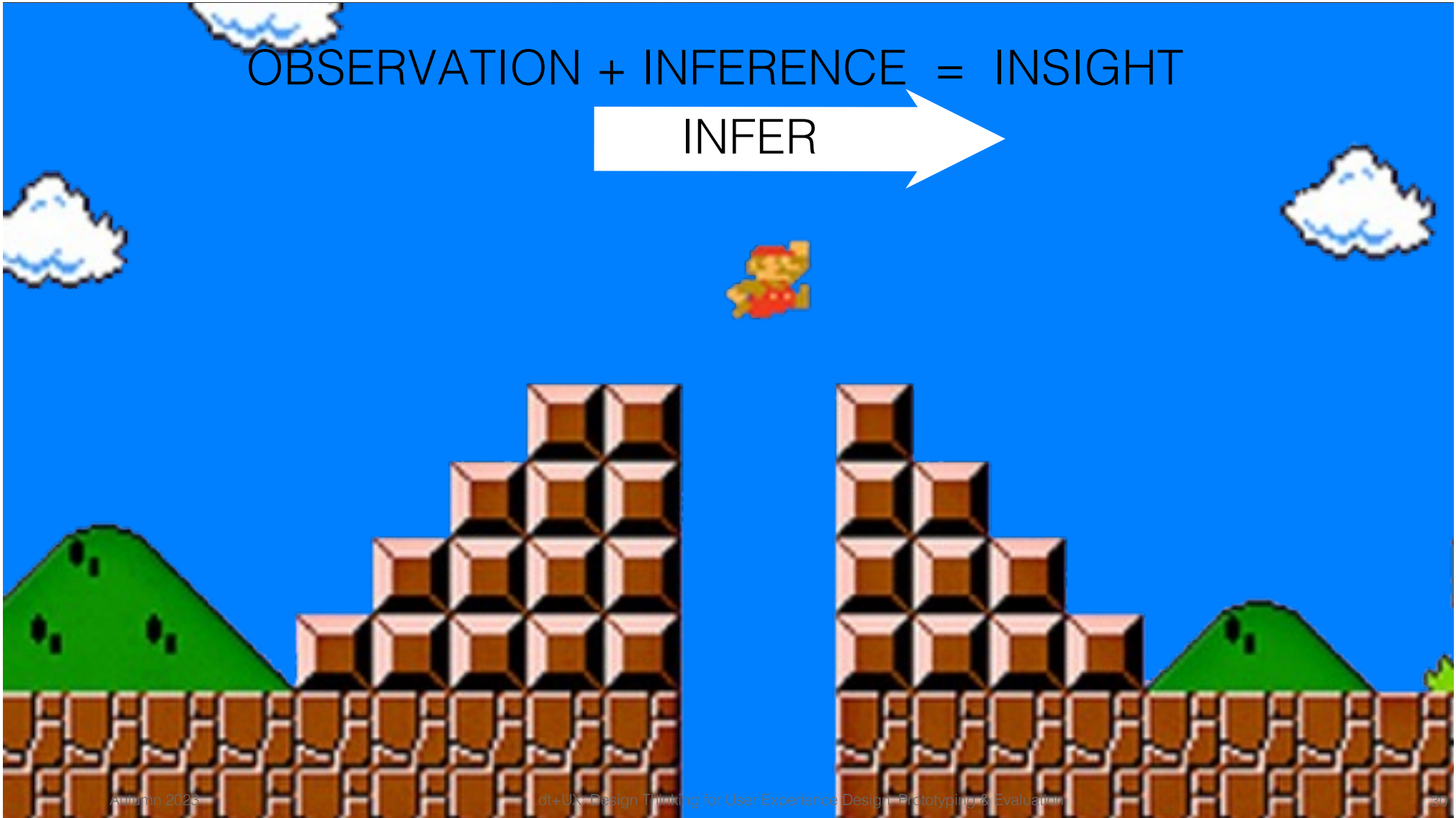
↑
NOTICE
SOMETHING

↑
“I WONDER IF THIS
MEANS . . .”

↑
ACTIONABLE
LEARNING
ABOUT
PEOPLE

OBSERVATION + INFERENCE = INSIGHT

INFER



THE SELL:
TIDE
REMOVES
TOUGH
STAINS &
KILLS
GERMS





We heard:

“I rarely wash my jeans, I want them to look great longer”

We observed:

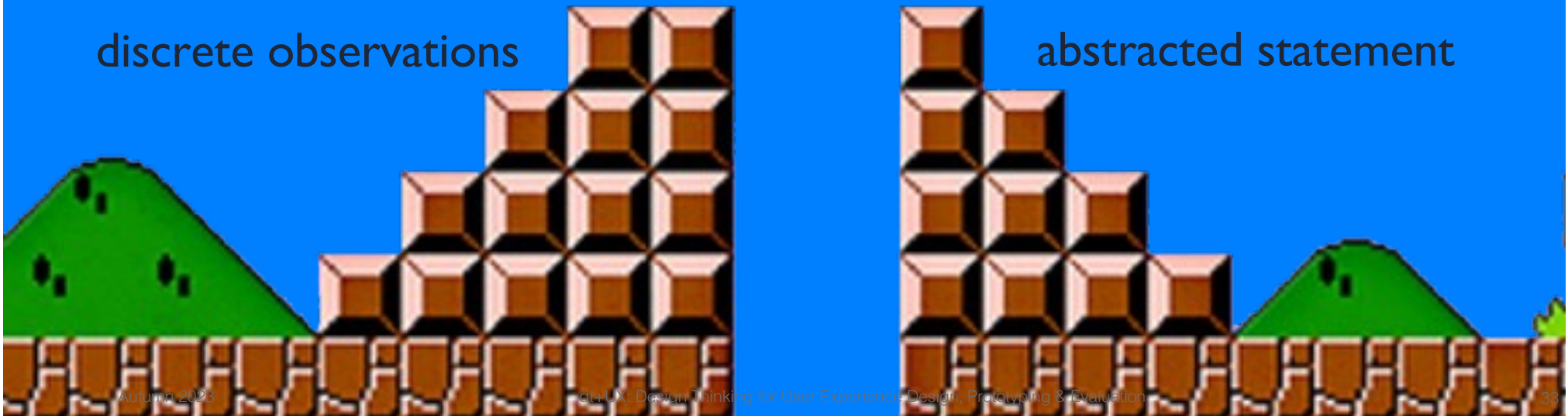
Jeans on the back of a chair



Millennials care about their clothes, and that means not cleaning them

discrete observations

abstracted statement



The Perennial Objective:

**IMPROVE THE STAIN-REMOVING
PERFORMANCE OF TIDE**

The Realization:

**IT'S NOT ABOUT CLEANING. IT'S
ABOUT CARING FOR CLOTHES.**

REALIZE



Define

FOCUS

FOCUS ON *ONE* MEANINGFUL CHALLENGE

Focus by Writing a “Point of View”

A **unique, concise reframing** of the problem that is **grounded in user needs & insights**.

Focus by Writing a “Point of View”

A **unique, concise reframing** of the **problem** that is **grounded in user needs & insights**.

Focus by Writing a “Point of View”

WE MET . . .

(person you are inspired by)

WE WERE SURPRISED TO NOTICE. . .

(tension, contradiction, or surprise)

WE WONDER IF THIS MEANS. . .

(what did you infer? **need**—verb reflecting user needs)

IT WOULD BE GAME-CHANGING TO. . .

(Frame up an inspired **challenge** for your team.

NOT a reason for the need! Not a solution, but a **more informed problem**)

Focus by Writing a “Point of View”

WE MET . . .

Chuck, a young millennial living in an apartment in SoCal

WE WERE SURPRISED TO NOTICE. . .

he says he cares about his jeans, but he **doesn't** wash them often

WE WONDER IF THIS MEANS. . .

he believes the best way to **protect** his jeans is to **not wash** them

IT WOULD BE GAME-CHANGING TO. . .

help him **care for his clothes** while keeping them clean



<https://hips.hearstapps.com/hmg-prod/s3.amazonaws.com/images/acid-wash-jeans-1612804998.png?crop=0.505xw:1.00xh:0.192xw:0&resize=980>



ALUM
ACTION

Autumn 2023

dt+UX: Design Thinking for User Experience Design, Prototyping & Evaluation

42

Making Art Accessible to Young Professionals

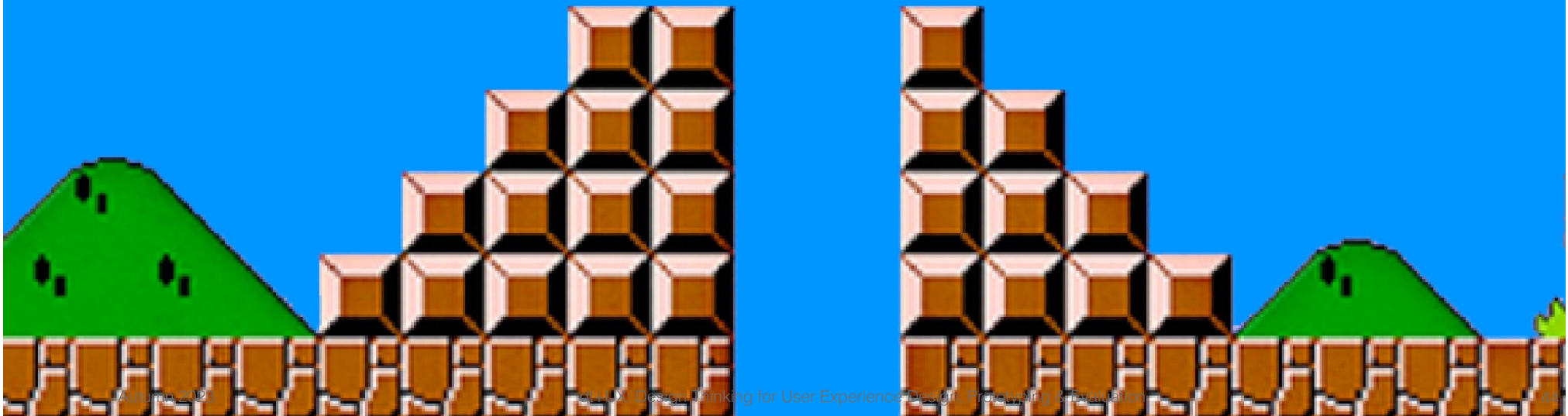


We heard:
“I don’t understand.
Why is this \$50 and this \$5000.
I actually like the \$50 one
more, but maybe it sucks.”

“What do my
friends like?”



We think of
collecting art as
deeply personal,
but in fact for
them art is about
what others are
going to think.



The presumed mindset:

ART IS DEEPLY PERSONAL.

The realization:

ART IS FASHION ON THE WALL.

Focus by Writing a “Point of View”

WE MET . . .

(person you are inspired by)

WE WERE SURPRISED TO NOTICE. . .

(tension, contradiction, or surprise)

WE WONDER IF THIS MEANS. . .

(what did you infer? **need**—verb reflecting user needs)

IT WOULD BE GAME-CHANGING TO. . .

(Frame up an inspired **challenge** for your team.

NOT a reason for the need! Not a solution, but a **more informed problem**)

WE MET . . .

Joel, a guy in his twenties with a good job and a new apartment

WE WERE SURPRISED TO NOTICE . . .

He worries his **taste was unrefined** when the pieces he liked didn't align with the more expensive prices

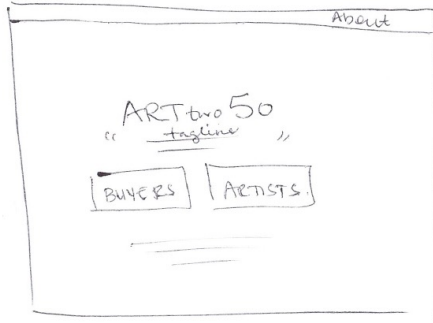
WE WONDER IF THIS MEANS . . .

Joel views **art as fashion** on the wall: it's about what his friends are going to **think about his taste**

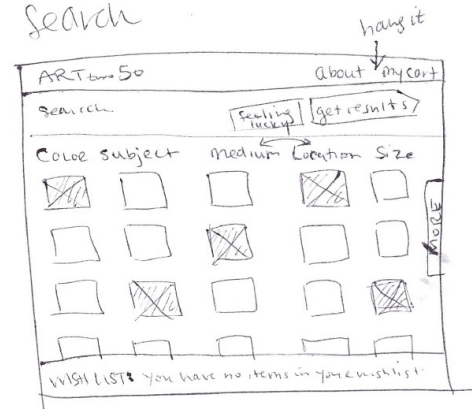
IT WOULD BE GAME-CHANGING TO . . .

help buyers **cut through the paralysis of doubt**

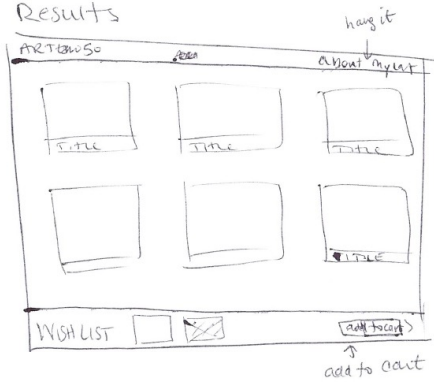
Landing



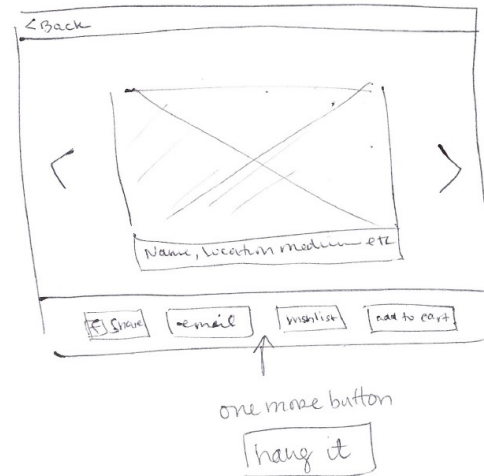
Search

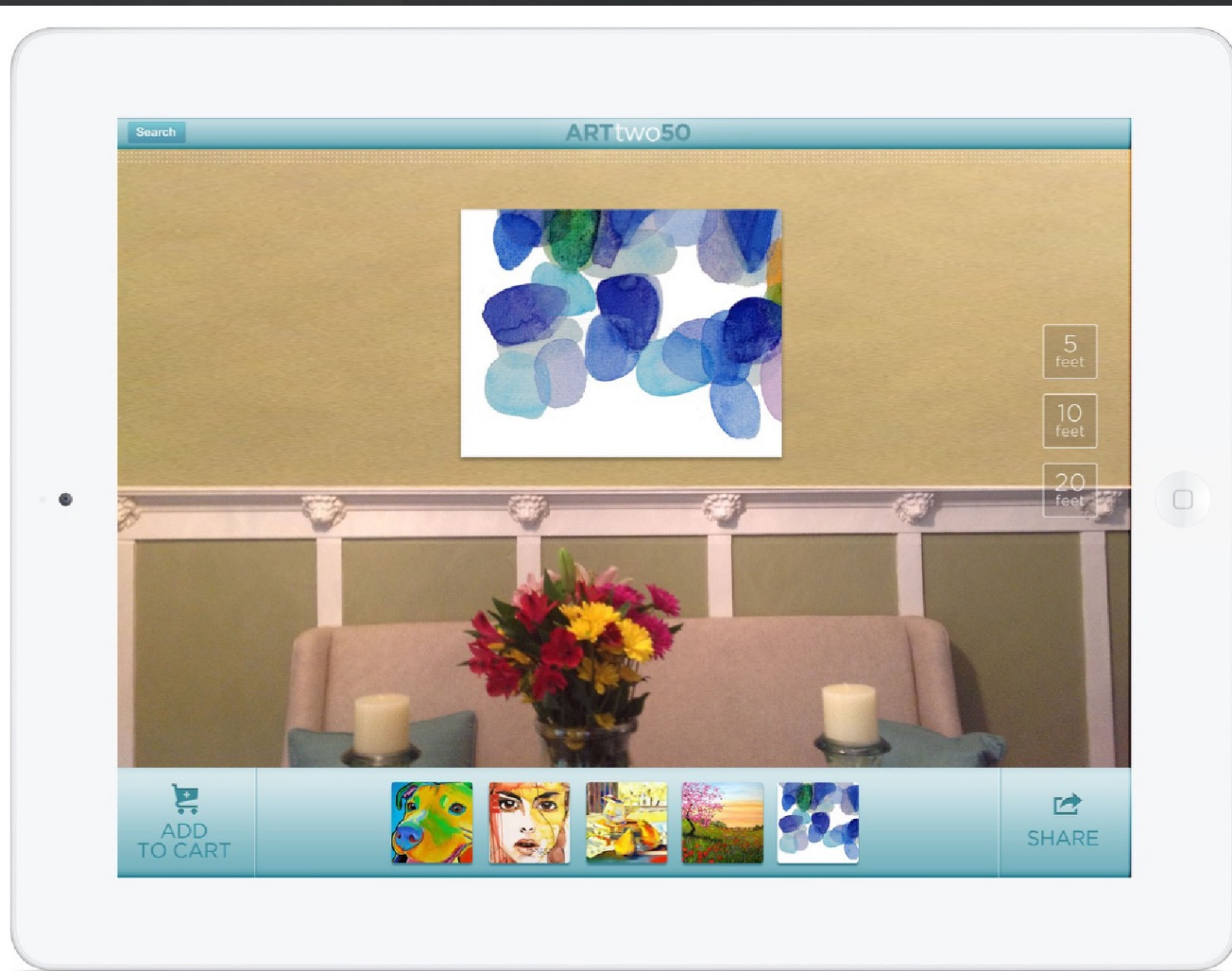


Results



Individual Result





Discover **original** art
inspired by you and the
colors in your space.

[Watch the video](#)

[Download iPad App](#)

From the artist to your wall for \$250

Buy original artwork for \$250 with **free shipping and returns**.

[Learn More](#)

Team Wanderlust

We heard:

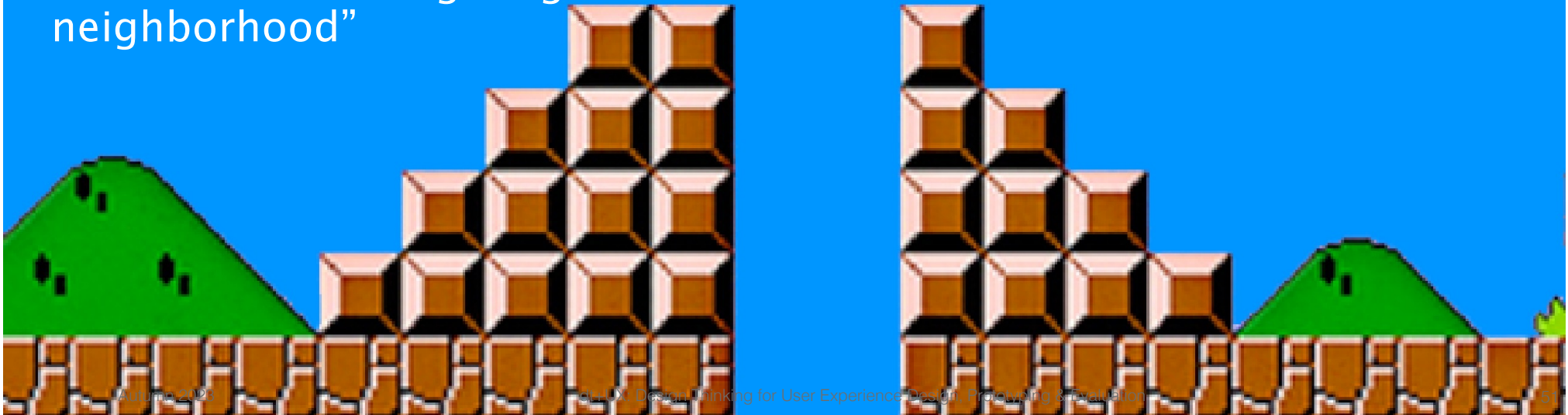
“[I’m] a person who only goes to places one always goes – safe bets.”

“when visitors come or I’m with other people, I’m motivated to research and explore new places”

“safety is the most important element when navigating a neighborhood”



People are not always searching for the sure thing and other people can serve as motivation to explore new areas



WE MET . . .

Lena, a **newcomer** to the city, who is **afraid to stray** from her routine path

WE WERE SURPRISED TO NOTICE . . .

she **enjoyed diverging** from her usual route to find a restaurant for her **friend** who was visiting

WE WONDER IF THIS MEANS. . .

people are willing to explore if they feel safe

IT WOULD BE GAME-CHANGING TO . . .

motivate people to **explore unfamiliar places**

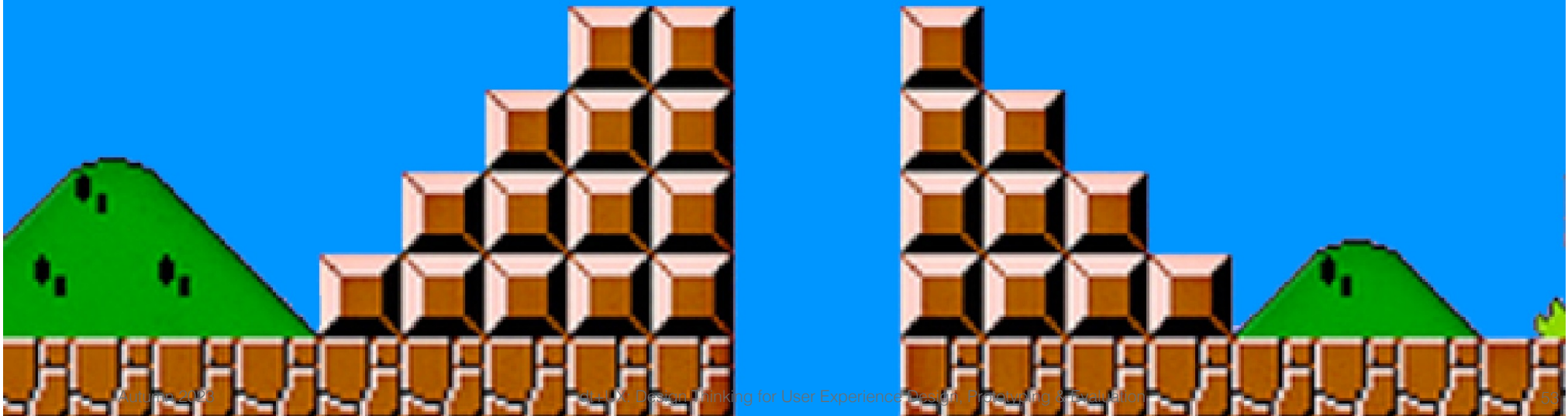
Team Wanderlust

We heard:

“there was a time that I only had a final destination to visit. Since I wasn’t in a rush, as long as I arrived to my final destination, routes did not matter.”



The fastest route is not always the preferable route. People need a way to customize their routes depending on context/purpose.



WE MET . . .

JunGu, a short-time visitor from Korea, exploring the area on his way to a destination

WE WERE SURPRISED TO NOTICE . . .

people are not always searching for the fastest route

WE WONDER IF THIS MEANS. . .

people would like to select more interesting routes

IT WOULD BE GAME-CHANGING TO . . .

customize routes based on one's travel goals (interest)

TOO MUCH OF A SOLUTION

POV Will Differ Depending On Who You Talk To

The image shows a Google search interface for the term "professor". At the top, the Google logo is on the left, and the search bar contains "professor". Below the search bar are navigation tabs for "All", "News", "Images", "Videos", "Books", and "More". On the right side of the search bar are icons for camera, voice search, and a magnifying glass. Below the search bar are filters for "Settings" and "Tools".

Below the search bar is a horizontal row of filter icons with labels: "college", "university", "pokemon", "clipart", "teaching", "math", "old", "art", "physics", "harry potter", "stock photo", "classroom", "academic", and "chemistry".

The main content area displays a grid of search results. Each result consists of a thumbnail image and a caption with a source URL. The results include:

- Professor - Wikipedia (en.wikipedia.org)
- Professor Office Hours | How to Get the ... (personson.com)
- Differences Between Teacher and ... (differencebetween.net)
- College Professor - WeUseMath.org (weusemath.org)
- How to Become a College Professor (collegetransitions.com)
- Matthew McConaughey Is Film Professor ... (popsugar.com)
- Professor Prime effect ... (digest.bps.org.uk)
- Professor (Money Heis... (en.wikipedia.org))
- career-advice.jobs.ac.uk (career-advice.jobs.ac.uk)
- The Professor Is In: Research First o... (chronicle.com)
- Have a Tough College Professor? Here's ... (noodle.com)
- The Professor (2018) - ... (imdb.com)
- How to Pick the Best Professors | Fastweb (fastweb.com)
- How to Become a Professor (howtobecome.com)
- How To Become a Professor | Fastest ... (worldscholarshipforum.com)
- Money Heist Season 5: Professor's ... (pinkvilla.com)
- University professor with sexist and ... (independent.co.uk)
- Female Professor HD Stock Images ... (shutterstock.com)
- Seasoned faculty member re... (insidehighered.com)
- Students don't like female professors ... (world.edu)
- How to Become an English Professor ... (jobhero.com)
- Average College Professor Salary ... (onlinedegrees.bradley.edu)
- 75,447 Professor Stock Photos, Pictures ... (istockphoto.com)
- Professor - Wikipedia (en.wikipedia.org)

Guidelines for Gender Equity and Inclusivity

- [HCI Guidelines for Gender Equity and Inclusivity](#), by Morgan Klaus Scheuerman, Katta Spiel, Oliver L. Haimson, Foad Hamidi, Stacy M. Branham [note: lots of good material on this page, but linking directly to the survey section, as relevant for everyone]

Discussion Guide Resources

- [Creating an Effective Discussion Guide for User Research](#), Medium
- [5 Steps to Create Good User Interview Questions](#), Medium
- [Asking the right questions during user research, interviews, and testing](#), uxdesign.cc, Medium
- [Sample UX Research Plan \(discussion guide + context\)](#), Smashing Magazine
- [Just Enough Research](#), by Erika Hall of Mule Design, Talk at UX Salon 2016 (30 min. video)

Administrivia

- Studio assignment stats

1st choice	2nd choice	3rd choice	4th choice	5th choice	6th choice	TOTAL
101	36	20	3	5	7	172

- Office hours are up to date on the web site
 - under teaching staff & office hours calendar
 - Landay: Monday 3:30 - 4:00 PM (390 Gates)
 - or via request by slack at another time
- OAE letters – if you have one send to me & Matt ASAP
- Open mindedness in design
 - follow the needfinding!

What You Wanted to Learn in CS147

Accessibility and Inclusive Design	15
UI/UX Design and Aesthetics	14
Design Thinking and User-Centered Design	12
Prototyping	8
Intuitive design	8
Specific subject design (i.e. healthcare, VR, social justice, journalism, voter edu)	7
Need finding / user research	6
Technical Aspects in Design	4

- A lot of material
- Moderate amount of material
- Little material

Administrivia

- Readings for today
 - [*Tips for Working Successfully in a Group*](#) by Randy Pausch
 - [*The Discipline of Teams*](#) by Katzenbach and Smith, Harvard Business Review
 - [*How to Survive a Critique: A Guide to Giving and Receiving Feedback*](#) by Karen Cheng
- Listen
 - [*Invisible Women, 99% Invisible, Episode 363*](#) (39 minutes)
- What did you think?

Team Meeting Agenda

1. Schedule weekly meeting times (2-3)
2. Make a plan for how you will get the rest of your interviews & presentation slides done for Thur/Fri
3. Folks who have days where they know they won't be at studio, schedule your presentations now & make sure the team is covered & work is made up
4. Go over the homework assignment carefully & ask clarifications of your CA or of me during/after break

TEAM MEETING

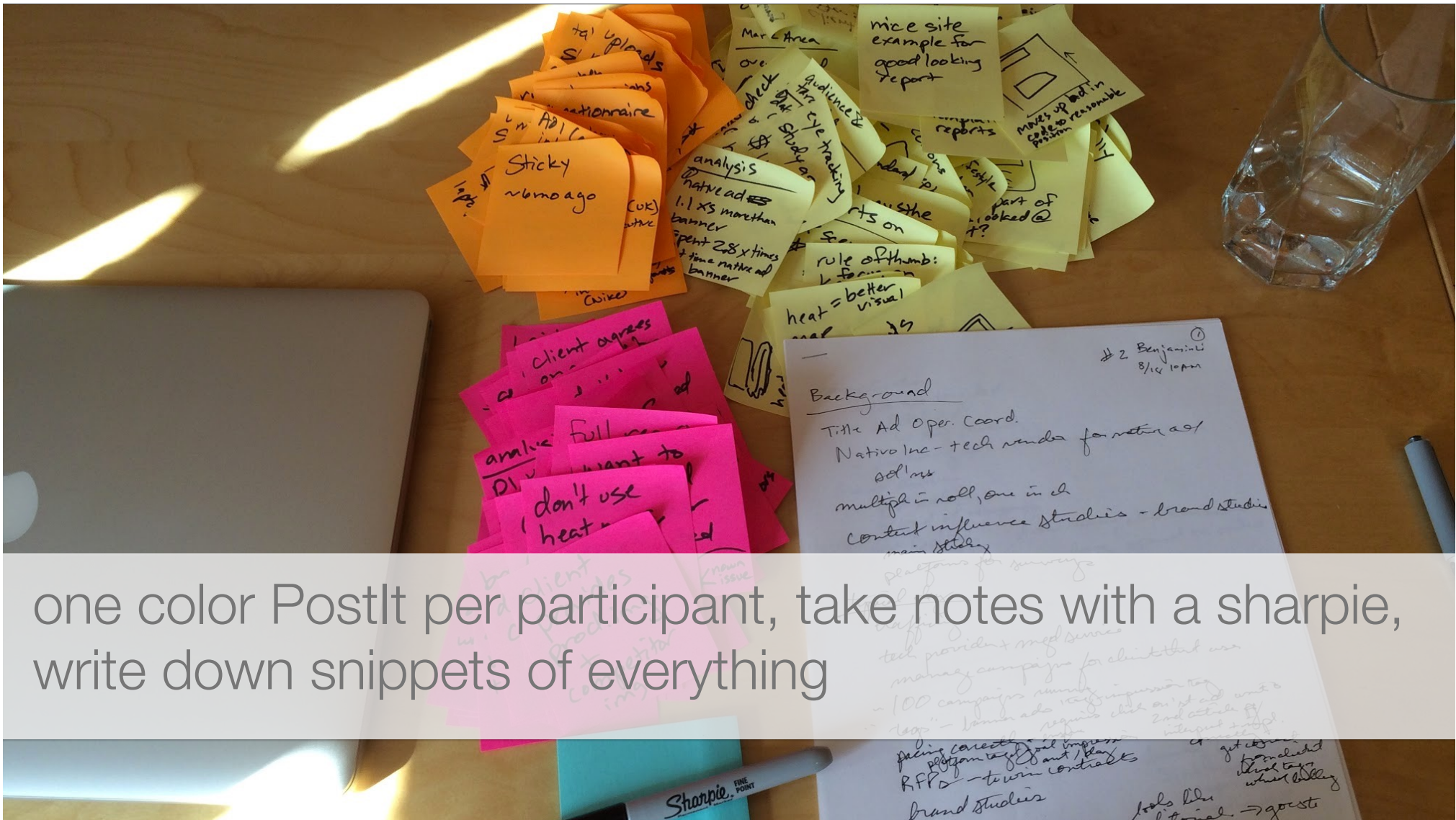
Point of View: How?

- Unpack your empathy work
- Leap from observations to identifying users, needs, & insights
- Reframe the problem as a Point of View (POV)

UNPACK

INSIGHTS

POINT OF VIEW



one color PostIt per participant, take notes with a sharpie, write down snippets of everything

tail uploads
questionnaire
Sticky vomoago
analysis
Native ads
1.1x's more than banner
spent 2.8x times + time native ad banner
audience & eye tracking
nice site example for good looking report
moves up and in code to reasonable position
rule of thumb: heat = better visual

client organizes on
Full
don't use heat

#2 Benjamin Li
8/14 10 AM
Background
Title Ad Oper. Coord.
Native Inc - tech vendor for native ad solutions
multiple in roll, one in ch
Context influence studies - brand studies
main study
platforms for surveys
tech providers + med services
making campaigns for client that use
- 100 campaigns running
"top" - banner ads, requires click on ad unit & 2nd article
pacing correctly, good impressions
platform target out / blank
RFPs - to win contracts
brand studies
get client from client about tags what billing
looks like
→ guests

Using the Data Collected in the Field

- Figure out what is important
- Affinity diagramming
 - group info & find relations between groups
 - Post-Its on large surfaces



Get Them up on a Wall...



Organize & discuss



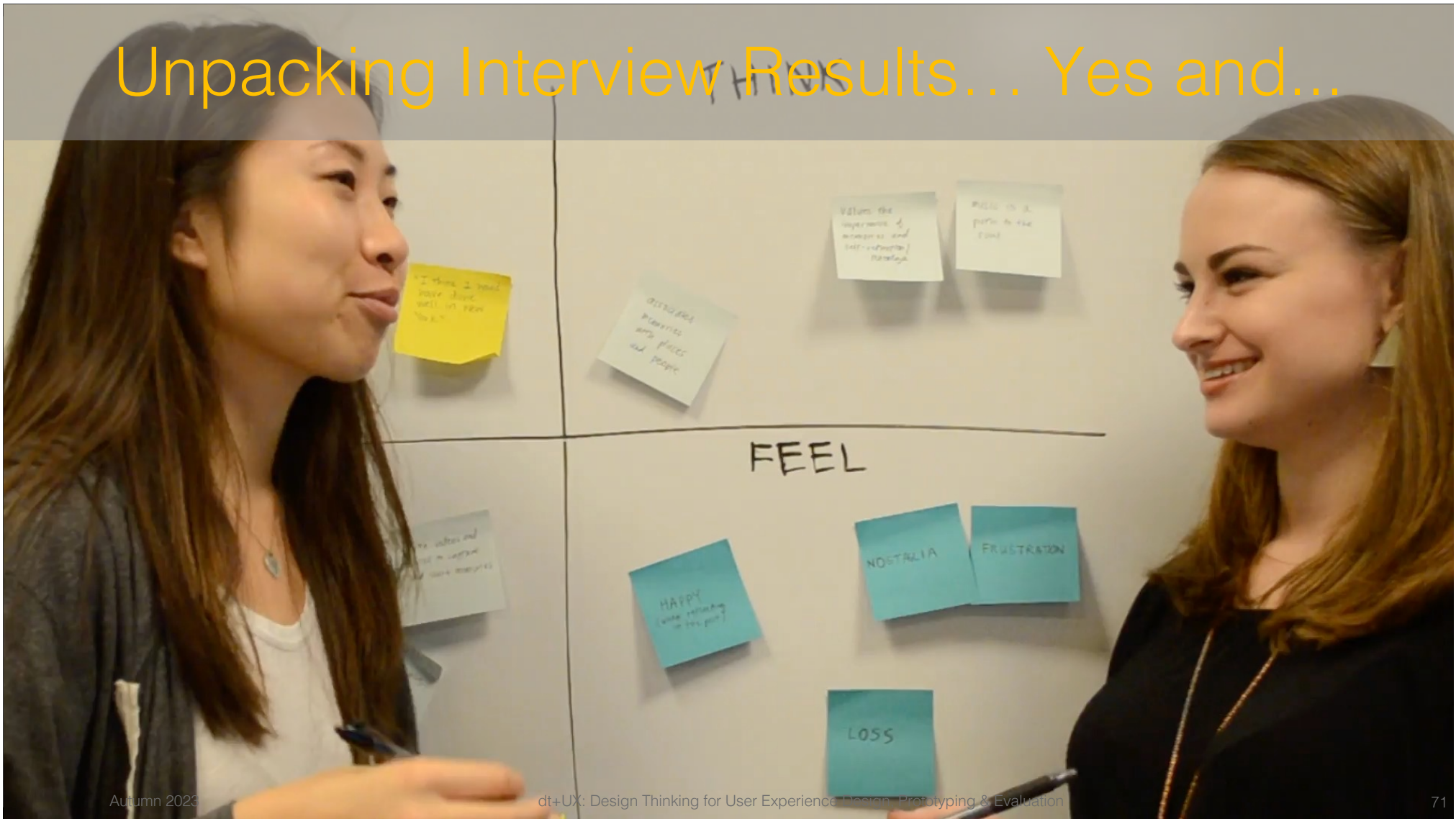
Share your Field Stories



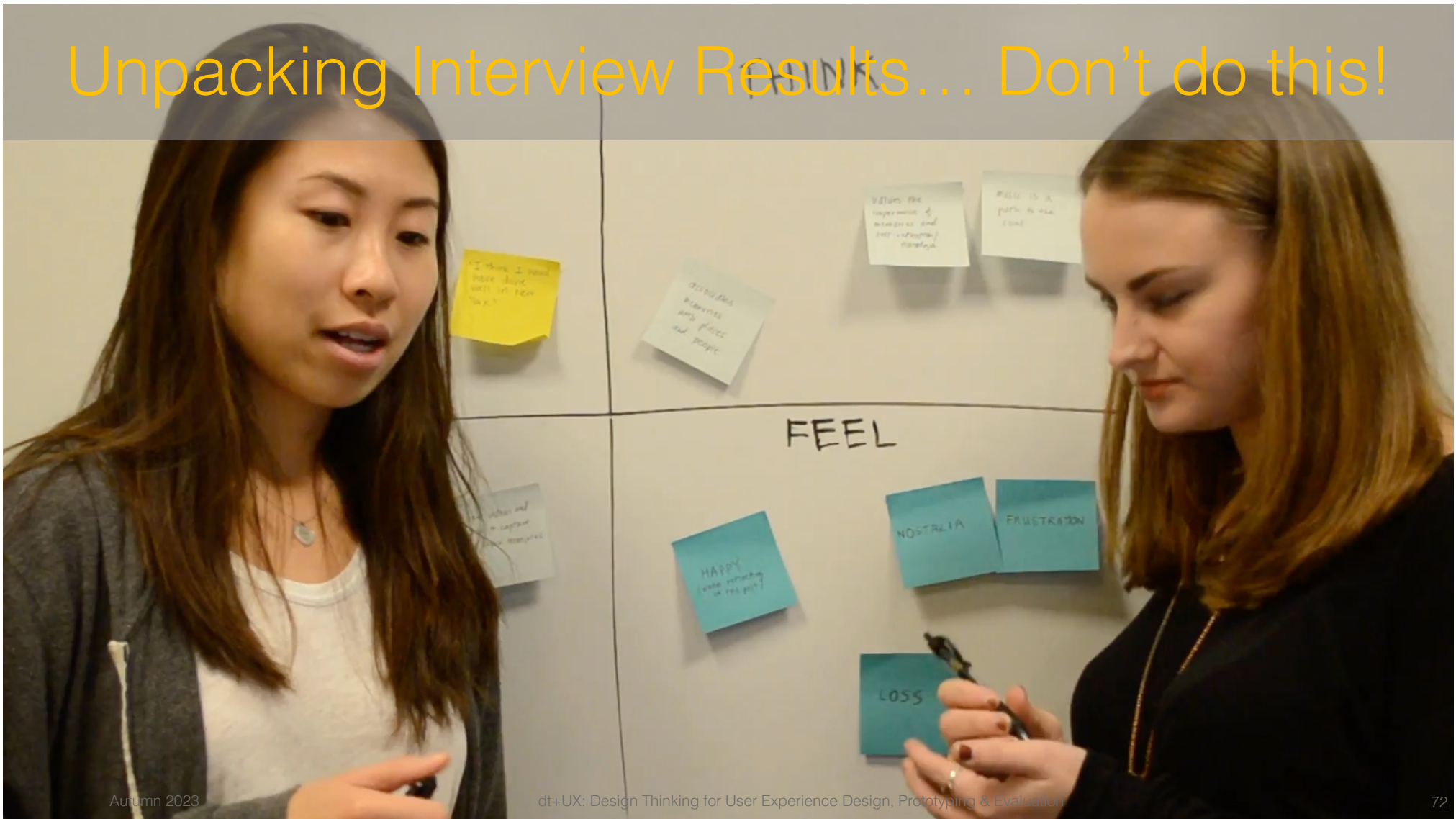
Recall Our Interviews With Bruno...



Unpacking Interview Results... Yes and...



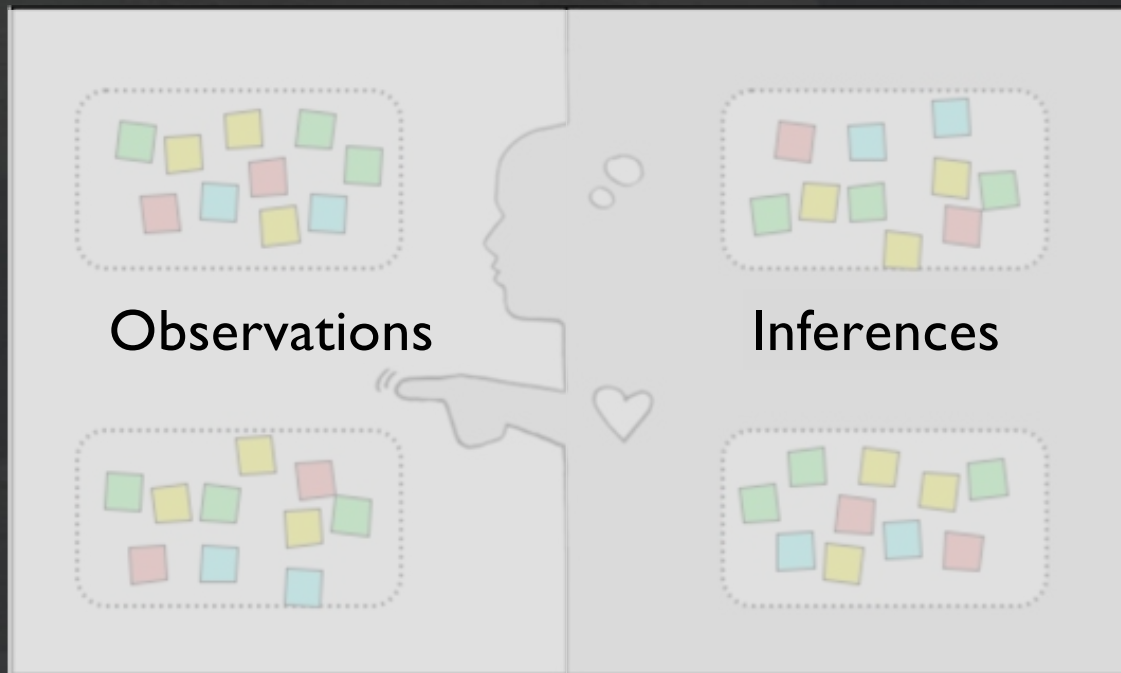
Unpacking Interview Results... Don't do this!



Empathy Map to Help Synthesize

say

think



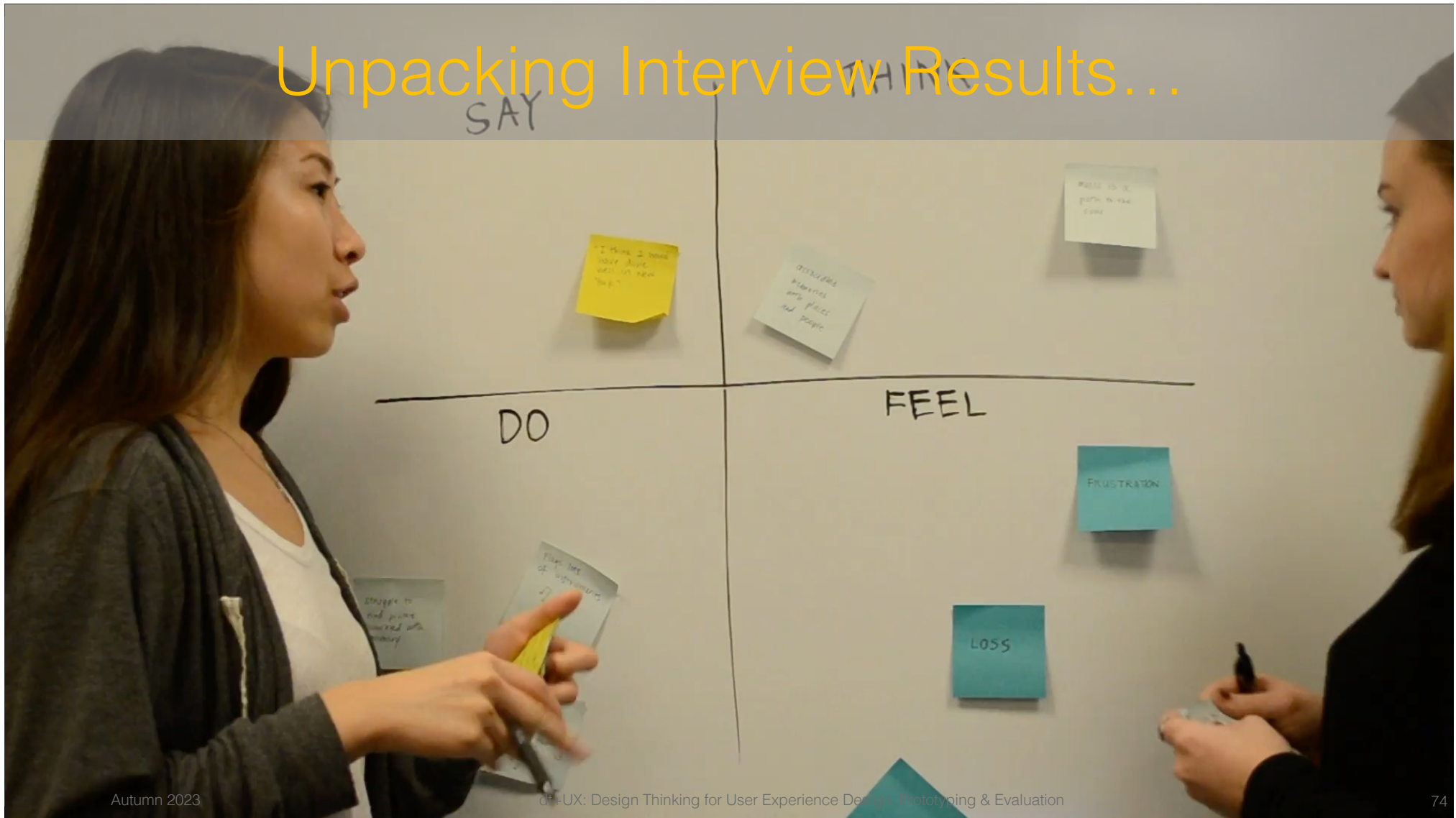
Observations

Inferences

do

feel

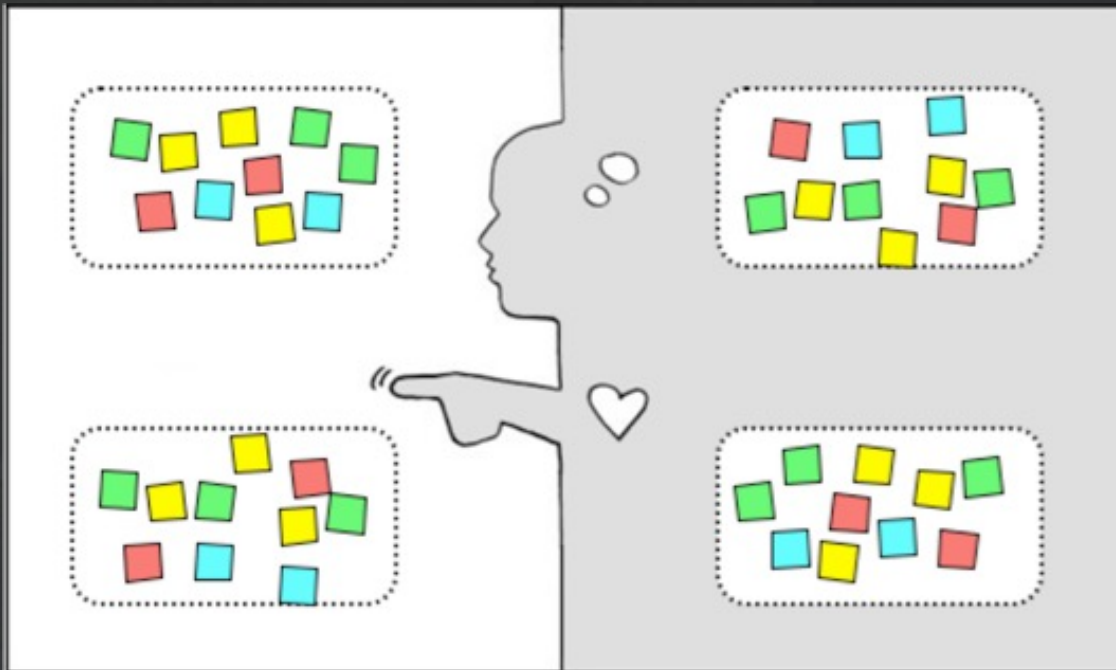
Unpacking Interview Results...



Empathy Map to Help Synthesize

say

think



do

feel

KEEP A LIST OF

TENSIONS, CONTRADICTIONS, SURPRISES



USE TO FIND NEEDS & INSIGHTS

Identifying Needs



WHAT DOES SHE NEED?

- A ladder, more books, ...
 - NO, these are solutions
- Acknowledgement from her peers that she is a hard worker?
- A strong voice driven by knowledge & education?
- More social time with her father through reading together?
- These needs are more **powerful & inspiring** for design

UNPACK

INSIGHTS

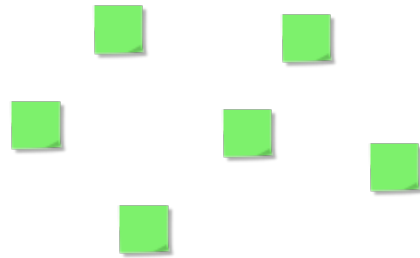
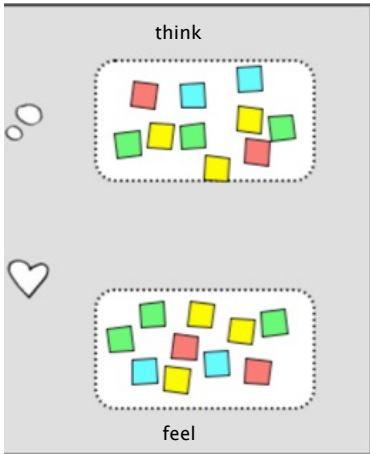
POINT OF VIEW

I wonder if this means . . .



TENSIONS,
CONTRADICTIONS,
SURPRISES

NEEDS & INSIGHTS



identify attributes, surprises, needs, & insights

user attributes



surprises...



needs



insights



combine to create a point of view

user attributes



surprises...



needs



insights



combine to create a point of view

user attributes



WE MET...

surprises...



...SURPRISED TO NOTICE...

needs



...WONDER IF IT MEANS...

insights



...GAME-CHANGING TO...

UNPACK
INSIGHTS

POINT OF VIEW

Point of View

WE MET . . .

(person you are inspired by)

WE WERE SURPRISED TO NOTICE. . .

(tension, contradiction, or surprise)

WE WONDER IF THIS MEANS. . .

(what did you infer? **need**—verb reflecting user needs)

IT WOULD BE GAME-CHANGING TO. . .

(Frame up an inspired **challenge** for your team. The insight.

NOT a reason for the need! Not a solution, but a **more informed problem**)

Characteristics of A Good Point of View

- Provides focus & frames the problem
- Inspires your team
- Provides a reference for evaluating competing ideas
- Fuels brainstorming by suggesting “how might we” statements
- Captures the hearts and minds of people you meet
- Saves you from the impossible task of developing concepts that are all things to all people
- Is something you revisit & reformulate as you learn

DO IT NOW:

UNPACK: note the say, do, think, & feel

NEEDS/INSIGHTS: infer from observations

POINT OF VIEW: 1 written sentence

the truck owner

<https://vimeo.com/9212719>

Do It Now:

UNPACK: note the say, do, think, & feel

SURPRISES: surprises, tensions, & contradictions

NEEDS: infer from the observations above

INSIGHTS: take a leap as to what the real problem is

POINT OF VIEW: 1 written sentence

We met X

We were surprised to notice...

We wonder if this means...

It would be game-changing to...

POVs for the truck owner

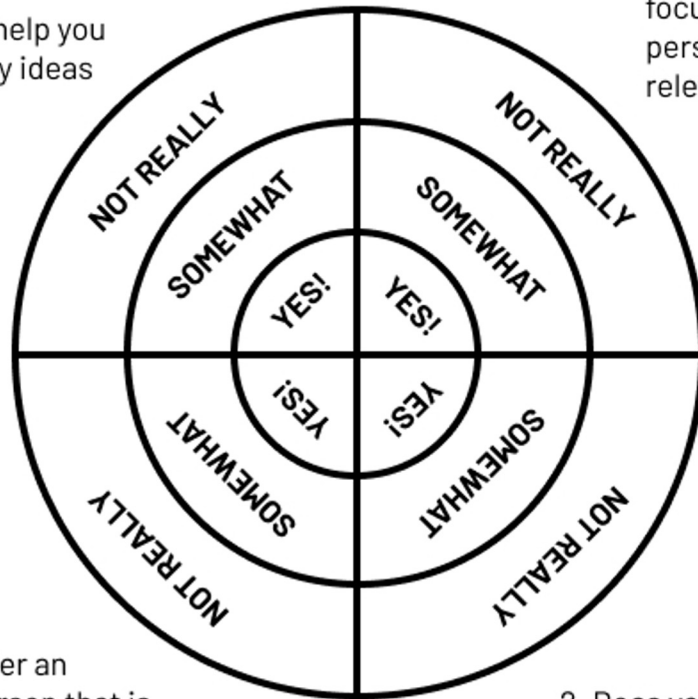
- We met...
- We were surprised to notice...
- We wonder if this means...
- It would be game changing to...

EVALUATE YOUR POV

Start Here



1. Does your POV start by focusing on one specific person and sharing relevant context?

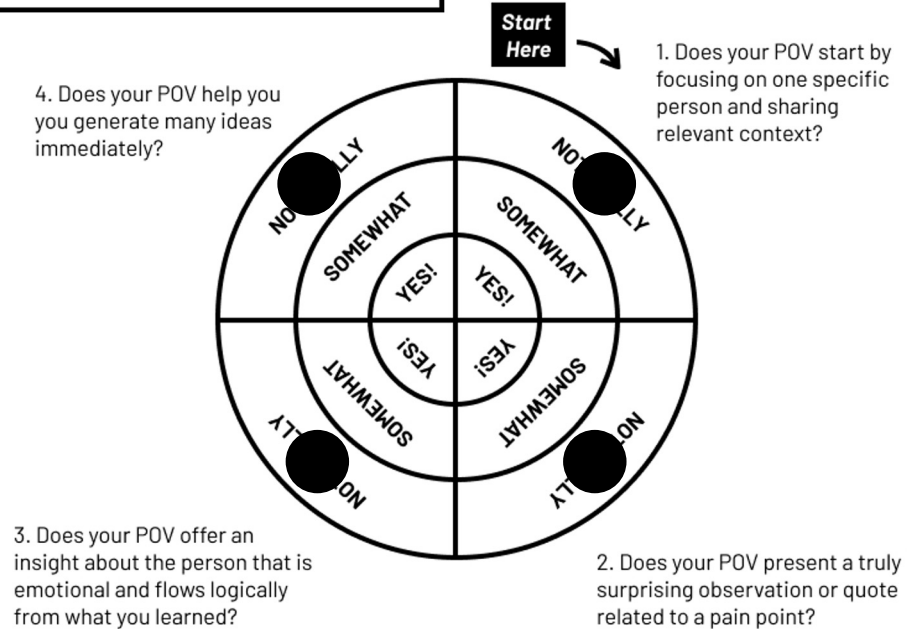


4. Does your POV help you you generate many ideas immediately?

3. Does your POV offer an insight about the person that is emotional and flows logically from what you learned?

2. Does your POV present a truly surprising observation or quote related to a pain point?

EVALUATE YOUR POV



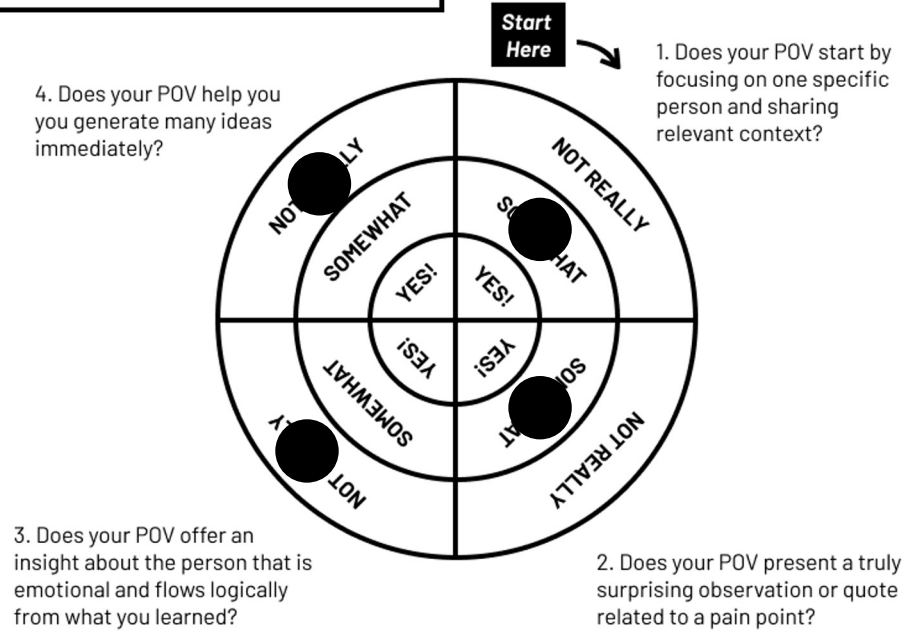
We met... Chuck. ← *No background*

We were surprised to notice... he wears jeans often and they're always dirty because he doesn't clean them. ← *It's a fact that jeans get dirty when you don't clean them. Not surprising.*

We wonder if this means... Chuck is lazy. ← *Focus more on Chuck's emotional experience. Don't label your users.*

It would be game changing to... help him be less lazy. ← *This is a big assumption about Chuck instead of his experience.*

EVALUATE YOUR POV

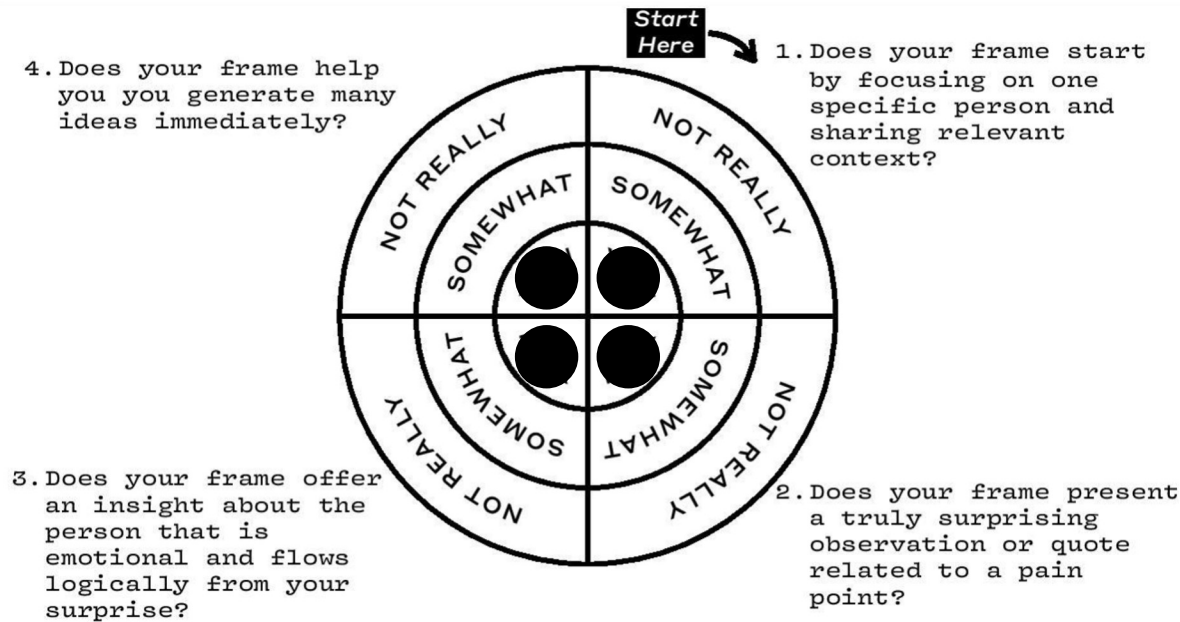


We met... Chuck, a guy who wears jeans all the time. ← *not enough about his identity*

We were surprised to notice... he wears his jeans dirty and chooses not to clean them. ← *why is it surprising he chooses not to clean them?*

We wonder if this means... Chuck doesn't have time to clean his jeans. ← *maybe, but not super logical in explaining his choice.*

It would be game changing to... provide Chuck with faster ways to clean his jeans. ← *limits the brainstorming*



We met... Chuck, a young millennial living in an apartment who loves to wear jeans. ← *lots of context!*

We were surprised to notice... he cares about his jeans and wants to preserve them, but doesn't like to wash them. ← *contradiction!*

We wonder if this means... Chuck believes that the best way to take care of his jeans is to *not* wash them. ← *about Chuck's beliefs!*

It would be game changing to... help him care for and preserve his clothes while still keeping them clean. ← *sky's the limit!*

Further Reading

[An Image of Society: Gender and Racial Representation and Impact in Image Search Results for Occupations](#). Danaë Metaxa, Michelle A. Gan, Su Goh, Jeff Hancock, and James A. Landay. 2021. *Proceedings of the ACM on Human-Computer Interaction*, Volume 5, CSCW1, Article 26 (April 2021), DOI:<https://doi.org/10.1145/3449100>. CSCW 2021

Next Time

- Wed Lecture
 - Ideate
- Studio
 - present your initial needfinding results & work in studio on Point of Views
 - focus on surprises/contradictions you found
- Read by Wednesday's lecture
 - [4 Steps to Successful Brainstorming](#) by Susan Adams
 - [From techno-optimism to techno-realism: What it means to innovate responsibly](#) by Margaret Gould Stewart
 - [Coping with Hitchhikers and Couch Potatoes on Teams](#), Excerpt from Oakley, et al.
 - [Early Customer Research](#) (pp. 5-27) by Tom Eisenmann (slides)
- Watch by Wednesday
 - [Working in Teams](#) (0:56), Tina Seelig, Stanford Technology Ventures Program